

Chapter Three

for determining the airworthiness of an aircraft: type certificate data sheets and supplemental type certificates.

Type Certificate Data Sheets

Originally, an aircraft product is certified by the FAA under the specification listed in the type certificate data sheets (TCDS). If it is maintained properly, it is considered airworthy. The original specification may be modified later by an airworthiness directive (AD). Sometimes, after a new product has been on the market for a while, design flaws or operational problems are discovered. An AD is then issued requiring the owner to correct the problem as outlined.

ADs have a compliance date, after which the aircraft no longer is considered airworthy. Unless there is a very serious problem, the time allowed to make the fix is usually more than adequate. Few owners are happy to receive an AD note in the mail, but aside from some inconvenience and expense to the owner, the system works well.

Supplemental Type Certificates

The second guideline is the supplemental type certificate (STC), which is issued by the FAA when the product, or aircraft, has been altered from the original TCDS. All changes must be approved by the FAA in an STC. Once the changes are approved, the aircraft or product is considered airworthy and may fall entirely under an STC.

For instance, an STC is required if the owner of a single-engine aircraft wants to install a backup vacuum system that was not originally approved by the airframe manufacturer. Often the manufacturer of the vacuum system modification already will have the STC, which specifies the make and model of the aircraft for which it is approved.

Many pilots believe compliance with required periodic maintenance and adherence to TCDS, ADs, and STCs is all that is required to keep an aircraft airworthy, but such compliance may not be enough. Parts used for compliance also must be approved by the FAA.

AIRCRAFT PARTS

How many pilots would ground their aircraft and make an appointment with the local shop when they discover that a small screw is missing from a wing tip fairing or a bolt is missing from the seat track? More likely than not, the pilot goes to a home workshop and digs into a coffee-can collection of old screws to find a near duplicate. Such low-cost parts can be very attractive, especially when doing your own preventive maintenance as allowed by the regulations, and they would seem to present no problem. In reality, use of unapproved parts automatically invalidates the aircraft airworthiness certificate!

Fortunately, very few maintenance facilities would ever consider using unapproved parts, but the temptation to use cheap parts when possible is tremendous. There are two types of parts authorized for use in aircraft: OEM and PMA. The screw a pilot fishes out of the workshop coffee can is probably an unapproved part, but parts are not limited to such obvious origins. Some unscrupulous operators will dig into their own coffee cans